

## CLAIMS

What is claimed is:

1. An optical component adapted for attachment to an optical bench, the optical component comprises an alignment feature for positioning the optical component relative to the optical bench, wherein the alignment feature extends into the optical component from an exterior wall, the alignment feature comprising a reentrant sidewall.
2. An optical component as claimed in claim 1, wherein the alignment feature is formed in a bottom face of the optical component.
3. An optical component as claimed in claim 1, wherein a proximal origin of the reentrant sidewall is depressed relative to the exterior wall surrounding the alignment feature.
4. An optical component as claimed in claim 3, wherein the outer exterior wall is bonded to the optical bench.
5. An optical component as claimed in claim 1, wherein the exterior wall surrounding the alignment feature is bonded to the optical bench.
6. An optical component as claimed in claim 1, wherein the exterior wall is depressed relative a surface that is bonded to the optical bench.
7. An optical component as claimed in claim 1, wherein the alignment feature comprises a slot that extends along a length of the optical component.
8. An optical component as claimed in claim 1, wherein the alignment feature comprises a slot that extends along an entire length of the optical component.
9. An optical component as claimed in claim 1, further comprising a coating over the optical component that is used to attach the optical component to the optical bench.

10. An optical component as claimed in claim 9, wherein the coating is between 0.5 and 10 micrometers thick.
11. An optical component as claimed in claim 9, wherein the coating is about 3 micrometers thick.
- 5 12. An optical component as claimed in claim 9, wherein the coating is plated on the optical component.
13. An optical component as claimed in claim 9, wherein the coating is sputtered on the optical component.
14. An optical component as claimed in claim 1, further comprising a gold plated layer on the optical component over the alignment feature.
- 10 15. An optical component as claimed in claim 1, further comprising multiple alignment features spaced from each other along a width of the optical component.
16. An optical component as claimed in claim 15, further comprising at least two of the alignment features having different widths with respect to each other.
- 15 17. An optical component as claimed in claim 1, wherein a waist of the alignment feature is between 10 and 100 micrometers wide.
18. An optical component as claimed in claim 1, wherein a waist of the alignment feature is between 10 and 50 micrometers wide.
19. An optical component as claimed in claim 1, wherein a waist of the alignment feature is about 25 micrometers wide.
- 20 20. An optical component as claimed in claim 1, wherein a waist of the alignment feature is about 50 micrometers wide.
21. An optical component as claimed in claim 1, further comprising a gold alloy

coating on the optical component over the alignment feature for attaching the optical component to the optical bench.

22. An optical component adapted for precision attachment to an optical bench, the optical component comprising an alignment feature for positioning the optical component relative to the optical bench, wherein the alignment feature extends into the optical component from an exterior wall, the alignment feature comprising two opposed reentrant sidewalls.

23. An optical component as claimed in claim 22, wherein the alignment feature has a frusto-triangular profile.

24. An optical component as claimed in claim 23, wherein a waist of the alignment feature is between 10 and 100 micrometers wide.

25. An optical component as claimed in claim 23, wherein a waist of the alignment feature is between 10 and 50 micrometers wide.

26. An optical component as claimed in claim 22, wherein the alignment feature has an hourglass profile.

27. An optical component as claimed in claim 26, wherein a waist of the alignment feature is between 10 and 100 micrometers wide.

28. An optical component as claimed in claim 26, wherein a waist of the alignment feature is between 10 and 50 micrometers wide.

29. A method for installing an optical component (100) on an optical bench (10), the method comprising:  
determining a position of the optical component (100) by reference to an alignment feature (310) formed into an exterior wall (210) of the optical component;  
determining a position of the optical bench (10) by reference to a bench alignment feature (22); and

bonding the optical component (100) to the optical bench (10).

30. A method as claimed in claim 29, wherein the step of determining the position of the optical component (100) includes locating a proximal origin (328) of a sidewall (320).

5 31. A method as claimed in any one of the claims 29, wherein the step of bonding comprises solder bonding the optical component (100) to the optical bench (10).